

Medical Lib.

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<sup>1</sup> Editorial, Storage of Calcium, J.A.M.A. 96:197 (1931).    <sup>2</sup> Sherman, H. C. and Booher, L. E., The Calcium Content of the Body in Relation to that of the Food, Proc. Soc. Exper. Biol. & Med. 28:91 (1930).

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Refs: F. R. Fraser, J. C. Hoyle, etc., etc.

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## ORIGINAL ARTICLES

### ELECTRIC IONIZATION IN OTO-RHINOLOGY\*

By DR. GORDON J. MCCURDY

122 WATERMAN ST., PROVIDENCE, R. I.

The term Ionization as used in medicine is especially applied to the form of treatment which consists in the introduction into the tissues of particles called ions, by means of the electric current. This can be done because of the fact that salts of metals when in solution break up into particles called ions, to a greater or lesser extent. For instance, sodium chloride breaks up into sodium ions and chlorine ions. On passing a direct electric current, either galvanic or faradic, through the solution, the ions migrate to one pole or the other, depending on whether they are cations or anions, or whether they have a positive charge or electricity on them or a negative. The sodium ion mentioned above carries a positive charge. There is not space enough in this paper to enlarge on the reasons for this, so we must take them for granted. The chlorine ion carries a negative charge. When a current flows through the solution the sodium ions go to the cathode or negative pole, and the chlorine ions go to the anode or positive pole, and in each case the ions are set free as either free sodium or chlorine. These products then act as they would if they were free substances, which they are, and react accordingly—sodium with the water to form sodium hydroxide, and chlorine forms free gas and a little hydrochloric acid.

By putting an electrolyte into a cavity of the body, and putting one pole from a battery or other source of current into the solution, and the other pole on another part of the body, the lining of the cavity can be made to be the pole opposite to the one introduced into the solution. The ions which migrate to it interact with the body tissues to form various effects, depending on the polarity

and the solution used. The effect is, of course, a chemical one. The advantage in using an electric current to produce a chemical effect lies in the fact that the ions can be made to penetrate to various depths by regulating the strength of the current, and also on the fact that certain chemicals, such as zinc, can be introduced which, because of their physical properties or irritant effects, could not be introduced in any other way. Besides the effect of the solution introduced, the electricity produces the same effect on the electrolytes in solution in the tissue fluids, and thus effects may be produced further remote from the direct point of application of the electrodes.

Various electrolytes are used but zinc sulphate and sodium salicylate have been found to be the ones of most use, and, of the two, zinc sulphate is used much more than the sodium salicylate. The reason for this is that zinc ions of all available ions are the least irritant and form an insoluble compound with colloid proteins. Besides this, zinc sulphate used with the positive pole in this solution is found to be a vasoconstrictor, and stops hemorrhage and hardens tissue, and is sedative. The negative pole, besides the chemical effect it produces, is a vasodilator, and increases discharge, softens tissue, and may induce hemorrhage.

The use of ionization in medicine that is most common and best known is its use in chronic otorrhea. The best known exponent of this method of treating ears is Dr. A. R. Friel of London. He has obtained excellent results with this method, which is to clean the ear thoroughly, then to cocaine and shrink it with adrenalin, and then introduce the zinc sulphate solution, then use the Siegel speculum, to produce a negative pressure to draw out air bubbles from the crevices of the cavity, and thus allow the fluid to get at all the surface. He then runs a current through the solution, of a strength of about two millamperes for 15-20 minutes, then dries out the ear and sends the patient home for 7-10 days. This in many cases will make a dry ear. If the discharge continues he repeats the process and blows in some boric acid powder, to aid in absorbing any secretion that may form, and sees the patient at another

\*Read before the Rhode Island Medical Society, March 5, 1931.

ten-day period. If this does not produce a dry ear, there is probably some extra cause of chronicity, such as granulations, infected bone, small pockets to which the fluid does not penetrate, cholesteatoma, infected mastoid, polyps, etc. In a recent article he outlines the types of ears that can be treated with ionization with hopes of success, and the types that cannot: 1, those with accessible sepsis; 2, those with accessible sepsis plus a second factor as polyps, and inflammation in a neighboring organ. The types that give poor results are those with inaccessible sepsis, such as attic and mastoid disease. Occasionally a case yields to treatment but usually some operative procedure must be carried out first. In his cases he finds around 52% of successes with all the chronic ears treated. My experience has been somewhat similar, although much less extensive at present. The method I use on ears is about the same, also. His figures have been verified by others.

The benefits to be derived from ionization of the nasal cavity was first brought to my attention in my preliminary training. My chief at that time was doing quite a number of intra-nasal ethmoidectomies of a radical type, especially to relieve asthma and bronchiectasis. A good many of the cases of course had recurrent polyps in the nose, some of them recurring extremely rapidly. My chief told me to go ahead and ionize them all and see if I could help them. So I went ahead without much hope of success, for at that time I was not sold on the idea. I obtained just fair results, due, I think, to lack of strength in the current, and in not having the nose packed thoroughly enough, and in not having the head down far enough so there would be enough moisture against the ethmoid area. But in one girl I was quite surprised by my results. She had a rheumatic heart, a bronchiectasis that was quite extensive, and a suppurative and hypertrophic pansinusitis. The antrums were cleaned out radically under local, by a Denker operation, and a bilateral radical ethmoidectomy under gas was done. She gained considerable benefit from the operation. Her bronchiectasis was much better, but the top of her nose still grew polyps and put out a lot of pus. I started her on ionizations and got some benefit, and then one day left her on the machine for a half hour, and on returning found the current of the machine had mounted to between 15 and 20 millamp. She was a good sport and said it sort of

burned, but was not complaining very much. In a couple of days one side was completely dry and a few more treatments dried up the other side. Several weeks later she developed a little more polypoid material on one side, but it was easily taken care of. Incidentally, her bronchiectasis became a great deal better. So after that I became more enthusiastic and did not mind so much the tedious and careful packing of the nose that the method of treatment entailed.

Since coming to Providence I have ionized quite a number of noses for various conditions and have obtained some very encouraging results.

One may readily see that the difficulties of ionizing the nose are much greater than in the case of the ear. In the first place there is a much greater area to be covered, and the cavity is not one that may be filled up, without special preparations. The method I have used mainly is to first shrink up the whole cavity as much as possible with adrenalin, and then clean it out thoroughly. Then I pack the cavity full of gauze, taking care to get up under the middle turbinates, and incorporate a zinc electrode into the packing. Then I have the patient lie on a treatment table with the headrest down so that the head is lower than the body. This allows the top of the nose to become a reservoir. About an ounce and a half of fluid may be held thus by an ordinary person without its running into the throat. Of course the whole nose is not filled, but the packing becomes very moist and makes a good contact. When zinc sulphate is the fluid used the positive pole is introduced into the nose and when sodium salicylate, the negative. Another method of filling the nose is to put a rubber balloon into the throat and to inflate it. This will allow the nose to be completely filled, and is probably the best method.

The types of cases I have treated are of four kinds: first, polypoid conditions, both before and after operative intervention; second, turbinal hypertrophies and intermittent intumescent turbinates; third, catarrhs and chronic rhinitises; and fourth, ozaena. I have already given a case of the first variety. The zinc sulphate ionization will without question shrink polypoid structures. To see what amount of shrinkage I could get, I took two boys, charity patients, both of whom were working and could not spare the time for operative interference, and both of whom had nasal

cavities quite full of polyps. They both had a lot of muco-purulent discharge. The nasal cavities of each were packed, as above, and they were ionized twice a week for three weeks at 5 milamp. for 20 minutes. At the end of that time the polyps were about half the size that they were at first, and the discharge was much less. I ionized them further, but this was about the maximum benefit I could get. They will have to have a double ethmoidectomy later, after which they should be ionized some more.

In the second type of case with hypertrophied turbinates or with intermittent intumescent turbinates, in which first one side then the other is congested and closed off, much benefit can be obtained. The zinc sulphate ionization many times makes a permanent shrinkage of the turbinates. I have had success with a number of patients, and the reports of others bear out my experience. It usually takes six to ten treatments, which I usually do twice weekly. In this type of case the electrode can usually be used somewhat in the way of a cautery. A zinc needle may be run through the turbinate from front to back, near the bone edge, and a current of 15 milamp. employed for about half an hour. Then the current is reversed, so as to loosen the needle, and the needle is withdrawn. A permanent shrinkage will be obtained from this.

In the third type of case, that of a chronic rhinitis or postnasal catarrh, ionization often gives quite striking results. For instance, one patient, a lady, age 70, had developed apparently an acute ethmoiditis, had been treated for six months with intranasal packs and bakings, etc., three times a week with no benefit. She still had severe headaches and nasal drainage. I could find no actual sinus infection. The X-ray showed no sinus involvement. The first treatment gave her a great deal of discomfort for several days, probably due to congestion from the irritation of it, which produced a consequent vacuum sinus headache, but she was game and came back, and after three more treatments her headache was completely gone, and her discharge had almost ceased. A sub-mucous resection would have undoubtedly done her as much good, but due to her age and the state of her cardio-vascular-renal system, I hesitated to do this. This has been the most striking instance of alleviation of this type of case, but I have obtained good results in several other cases.

In the case of ozaena or atrophic rhinitis, ionization undoubtedly aids in alleviation of symptoms, and in cleaning up the nose. The crusting becomes much less in amount, and the odor becomes much less. So far, I have had no cures of the condition, but in conjunction with other methods of treatment the results are very encouraging. I usually use zinc for a few times, to help clear up the surface infection, then if the nose becomes too dry I employ salicylate to increase the congestion of the turbinates. Less current can be stood by the patient with this than with zinc, because the size of the salicylate ion is greater and with much force of current pain is experienced when too many ions try to gain entrance to the tissues at once. The treatment of ozaena must last over many months, as in other methods of treatment. I treat patients usually twice a week for a few weeks, then weekly, then at greater intervals. Attempts must also be made to clean up any concurrent sinus trouble the patients have. In my hands the nasal cavities look cleaner and have better color than with any other method I have seen used.

More cases could be cited than I have given, but these represent the types of cases in which ionization is of benefit. I do not attempt to represent it as a cure-all. I hope I have not been too enthusiastic. But, in connection with other methods, it certainly deserves a place in the treatment of a great many nasal conditions, as well as those of the ear.

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## THE DIAGNOSIS OF HYPERTHYROIDISM\*

By DR. FRANK E. McEVoy

230 THAYER ST., PROVIDENCE, R. I.

Within recent years evidence has been unmistakable of a significant change in the attitude of the medical profession toward the goiter problem. The former state of general indifference, probably fostered by the belief that the solution of this problem was the duty of a limited group of specialists, has been supplanted by one of widespread active interest in acquiring accurate knowledge of the diseases of the thyroid gland and their treatment. Nearly every phase of the problem is now being eagerly attacked by a steadily increasing number of investigators. Illustrative of this are: the numerous surveys of the incidence of goiter; the study of its prevention, and the institution in schools, districts, and states, of prophylactic measures sponsored by public health authorities; the organization and rapid growth of clinics for the observation and treatment of goiter; the great increase in the number of surgeons devoting full or partial time to the operative treatment of goiter; the development and growth of metabolic and research laboratories for the study of goiter; the

increase in the number of articles and lectures on goiter, and the organization of medical societies for the study of goiter. These as well as other facts show conclusively that the profession has been aroused and in turn has taken a more intelligent interest in educating the public on this subject. This awakening of interest, with the consequent dissemination of knowledge concerning the diseases of the thyroid gland, has played a significant part in the recent advances made in this field of medicine. These advances have been particularly apparent in the prevention of endemic goiter and in the improved immediate and end results of the surgical management of toxic goiters consequent on early diagnosis and treatment.

The progress made in the treatment of goiter during the last decade has been stupendous, greater than in any twenty-five-year period of its history, and the medical profession has much of which to be proud. Yet, the total knowledge of the thyroid gland and its diseases, when considered in relation to the magnitude of the whole goiter problem, shrinks to insignificant proportions. The seriousness and importance of the problem can be measured, to some extent, by the prevalence of goiter and by the effectiveness of the means of prevention and treatment.

According to numerous surveys, carried out for the most part by public health officers in various districts in the country, and according to the records of general examinations of youth in the World War, there is an incredibly high incidence of goiter in this country. This varies in different localities; broadly speaking, the disease is more prevalent in mountainous and intermountainous regions than on the coastal plains. The scope of this paper does not permit full discussion of this phase of the question, but I wish to allude to two reports which give some concrete conception of the prevalence of goiter. In a state-wide survey of Utah, Wallace and Beatty examined 110,086 school children, representing 80% of the total school-going population, and found, in 32% of the boys, and 54.5% of the girls, some degree of enlargement of the thyroid gland. From an examination of adults in the areas where goiter is most frequent, they estimated that the percentage of enlargements that spontaneously disappeared was very small, perhaps less than 20% for male children, and less than 10% for female children. Similar surveys of school children in other western

\*Read before the Rhode Island Medical Society at the Annual Meeting, June 4, 1931.

and midwestern states disclosed varying percentages of enlargement of the thyroid gland, all astonishingly high. The publication of the results of the examination by the Draft Board served a useful purpose not only in proving that a high incidence of goiter prevailed in certain states, but in demonstrating that no state was free from goiter. For instance, of the men examined from the state of Rhode Island, two out of every thousand had some form of goiter. Since the ratio of the incidence is one male to ten females, it is estimated, on the assumption that the same relative distribution of goiter exists in the female, that twenty out of every thousand of the population of Rhode Island have goiter.

The extent of the problem may be viewed from another angle. In the last decade there has been an enormous increase in the number of surgical operations on the thyroid gland. This has not been confined to clinics situated in goitrous areas, but to those in districts which formerly were supposed to be nearly free from goiter. For instance, in Rhode Island, in a large hospital in the year 1929, seven per cent of all the major operations were for goiter; in 1930, eight and two-tenths per cent; and in 1931, up to the present date, ten per cent. Rhode Island has generally been considered one of the goiter-free states, yet it would appear from these general figures that the condition is showing a steady increase during the past few years.

I wish in this paper to briefly call your attention to the principal pitfall in the diagnosis of hyperthyroidism as we have found it in the clinic. Ten per cent of all the cases examined last year who were referred to the clinic because it was presumed that they were cases of hyperthyroidism were cases of neuro-circulatory asthenia or autonomic imbalance. This is a syndrome usually occurring in an individual under forty years of age with variable appetite but no loss of weight, who usually does not suffer from dyspnoea on exertion but whose pulse rate becomes suddenly rapid under the slightest emotional provocation, whose heart is nevertheless normal to physical, X-ray and electrocardiographic examination; who is nervous, may show tremor and is emotionally unstable but has no goiter, exophthalmos, thyroid eye signs or increased metabolism. A syndrome, as Blumer aptly says, is often relieved by skillful neglect, reassurance and physiotherapy, but not improved by digi-

tal, iodine, X-ray radiation or partial thyroidectomy.

We believe that a number of these cases are being mistakenly operated upon at the present time for hyperthyroidism which does not exist and it can be readily seen that no greater harm can be done to an already unstable, nervous system than that by further insulting it with a serious operation which cannot possibly do the patient any good but does positive harm by adding further to his troubles by throwing him into a state of myxedema.

#### DIAGNOSIS

*Definition:* Hyperthyroidism may be defined as a disease of unknown etiology which is caused mainly by an abnormally increased activity of the thyroid gland. Typical cases are characterized by five cardinal signs: enlargement of the thyroid gland, tachycardia, tremor of the extremities, exophthalmos or protrusion of the eye-balls, and an elevation of the basal metabolic rate. All of the above signs may be absent except the last, but an increase in the basal rate, so far as is known, is always present in conditions attendant upon hyperactivity of the thyroid gland. There may be any combination of the other four cardinal signs or many other symptoms from various organs. The phenomena of the disease depend on the effect of the excessive secretion of the thyroid gland on the vegetative nervous system, the metabolism, and upon other endocrine glands.

Typical cases of extreme or severe hyperthyroidism should be diagnosed without difficulty, from the outstanding clinical picture and the corroborative laboratory tests. But in the incipient cases, or in the presence of a low grade hyperthyroidism in which the symptoms and signs are vague, the task becomes much harder. The following signs and symptoms have been found to be the most reliable.

1. Persistent acceleration of the pulse rate, 90-100 by day and by night, with subjective precordial discomfort, palpitation and the skipping of beats. Great variability of the heart action speaks for a neurosis.

2. Changes in the size, shape and consistence of the thyroid gland throughout or only in one lobe, though these be very slight. By one who has made it a constant habit to palpate normal thyroid

glands, in abnormal conditions slight changes due to hypertrophy and hyperplasia as well as scarring of the gland are detected at once by the increased consistence and inelasticity. Minute palpation of the thyroid gland is of the greatest importance. The presence of thrills, bruits or nodules, of course, together with other signs and symptoms immediately incriminate the thyroid.

3. Eye-signs.

(a) Von Graefe's is the most important eye sign.

(b) Slight prominence.

(c) Dalrymple's and Stellwag's sign.

4. Elevation of the basal metabolic rate, which is always present in cases of hyperthyroidism, except during a remission. This is a most reliable test, if carried out under proper conditions, which it often is not.

5. The relative increase in the lymphocytes of the blood is often helpful.

6. A history of vomiting and diarrhoea.

7. Loss of weight.

8. A voracious appetite.

9. The presence of a very fine tremor. This must be distinguished from the coarse shaking of the arm and hand often seen in the case of neuro-circulatory asthenia.

Constantly in the thyroid clinic we are called upon to see a certain type of case which, for want of better name, has been termed neuro-circulatory asthenia. These patients complain greatly of subjective discomfort. The following signs and symptoms are commonly found in this condition:

1. Headaches, usually frontal.

2. Extreme fatigue, which is somewhat paroxysmal in character, coming on every four or five days and lasting two or three days.

3. An exaggerated feeling of "drive" in their occupations.

4. Increased irritability, apprehension and extreme hypersensitiveness about their social and professional relations.

5. Anorexia, constipation and often haemorrhoids.

6. A very labile pulse, varying from the normal of 70 to 80 up to 120 to 140 when exposed to the least excitement.

7. Tachycardia, associated with irregular, deep breathing.

8. Absence of nausea or vomiting.

9. An oily skin.

10. Clammy hands and feet. Dermatographia.

11. In women, usually dysmenorrhea.

12. A perfectly normal thyroid gland and a normal basal metabolic rate.

13. The absence of significant eye signs.

14. Shaky hands with a coarse tremor.

Mentally, these patients are very bright. In such cases a careful clinical examination will enable us to exclude even the most mild case of hyperthyroidism. These cases have been mentioned here somewhat in detail, because it is not only necessary but also quite possible to differentiate this large group of functional disturbances from those due to actual disease of the thyroid gland, even in the very early stages. No matter how early or how mild, hyperthyroidism is always accompanied for a time by perfectly definite clinical signs and symptoms, although they may be very few and evasive. But, after all, we must never forget that hyperthyroidism may be, and often is, engrafted upon a condition of autonomic imbalance, psychoneurosis, neuro-circulatory asthenia or some other allied functional disorder. Again, it must be emphasized that in the absence of any demonstrable heart lesion, and in the absence of any acute or chronic infection, but in the presence of a persistent tachycardia, the possibility of disease of the thyroid gland should always be considered.

Too much reliance should not be placed upon metabolism reports. It has been our experience that the first metabolism test is too often inaccurate because of the conditions prevailing. Patients with neuro-circulatory asthenia often breathe very irregularly and this impairs the value of the test. Patients with true and severe hyperthyroidism who have been administered iodine for some time will often give a lowered metabolism reading which may be very misleading. A carefully taken clinical history and adequate physical examination is of far more value than single metabolism readings. Repeated metabolism tests should be made under proper conditions in doubtful cases.

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#### NEWPORT

Meets the second Thursday in each month

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**R. I. Ophthalmological and Otolaryngological Society**—2d Thursday—October, December, February, April and Annual at call of President. Raymond F. Hacking, President; H. A. Winkler, Secretary-Treasurer.

**The R. I. Medico-Legal Society**—Last Thursday—January, April, June and October. Henry M. Boss, Jr., President; Dr. Jacob S. Kelley, Secretary-Treasurer.

Meets the third Thursday in each month excepting July and August

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## EDITORIALS

### SOFT CURD MILK

Since pediatrics has been recognized as a special branch in medicine, infant feeding has passed through many phases. Each phase has been hailed by certain individuals or groups as a final solution to this difficult problem.

In the early days, the percentage method of Rotch was considered as an important contribution. It was an important contribution, but the complexity of the method soon brought about

some modification and resulted in simpler formulas that could be understood by the average mother. The introduction of protein milk was considered a great advance and has furnished a method to combat some of the severe disturbances of infancy. The acid milks, which allowed very concentrated foods, have proven of real value, especially in the cases of malnutrition and in many cases of pre-maturity. Then came the dried milks with ingenious names and also with ingenious methods of preparation and distribution.

One of the latest additions to help the pediatrician in his quest for the ultimate is soft curd milk. It has been found by experimentation that certain

grades of cows and especially certain individual cows produce a milk that has a very soft curd. This soft curd can be very easily digested by the infant and allows a concentrated mixture. It is not a difficult procedure to test for a soft curd in the milk. A small apparatus that consists of radiating blades is put into a jar with the milk and after the curd has been artificially obtained, this apparatus is pulled out with a spring balance that measures the force necessary to release the blades. So far as experiments have been carried, it seems established that the same cow will continue to produce soft curd milk, but so far no means have been discovered to change a cow that produces hard curd to one that produces the soft curd.

Undoubtedly the result of the investigations in soft curd milk will be to add another method to the problem of infant feeding, but it will not solve the problem of every difficult feeding case any more than the other methods that have preceded.

#### REGRETTABLE

The complete confidence which the patient reposes in her physician is one of the most sacred trusts that the ethics of the profession zealously guards. Conversely, the violation of this confidence for one's personal gain is repugnant to any physician worthy of the name.

Recently, there has come to light through press reports and court records, a second outrageous example of such deplorable conduct on the part of a doctor practising in this state under a license which must have been erroneously granted, considering the individual's education and training, and considering the subsequent abuse of licensure privilege which the man has apparently demonstrated.

Now, it appears that taking advantage of a mentally incompetent patient, he has allowed her to transfer her property to him, presumably for "safe keeping," whether by fraudulent design or not will later appear. At any rate, the court-appointed conservator must sue to recover all of the items of a rather competent estate, while the doctor in question complacently "allows" his erstwhile patient a mere pittance for her support. The whole transaction, if correctly reported, classifies that physician for the title of "The Meanest Man," and is in the

same category as "drunk rolling" and similar low forms of robbery of a defenseless person.

The whole profession rises in protest of this regrettable business that stains the good name of the splendid body of medical men of this state who have always stood for decency, ethics, and above all fair play to a patient.

Should the facts of the case eventually prove to be substantially correct, every respectable physician should call upon the State Commission of Health to revoke the license of the guilty party, and thereby purge the profession of a parasite.

The profession, the hospitals and the public of Rhode Island must not permit a malignant growth to sap the life blood of the fair name of our state. A radical operation appears to be indicated.

#### A REVIEW OF SOME RARE DISEASES OF INFANCY AND CHILDHOOD WITH SPECIAL REFERENCE TO GAUCHER'S SPLENOMEGALY AND NIEMANN-PICK'S DISEASE.\*

By STANLEY S. FREEDMAN, M.D.  
116 WATERMAN ST., PROVIDENCE, R. I.

The subject which I am about to present concerns four rare diseases of infancy and childhood, and involves peculiar pathological changes taking place in the reticulo-endothelial system. These diseases are:

- (1) Niemann-Pick's Disease.
- (2) Gaucher's Splenomegaly.
- (3) Amaurotic Family Idiocy.
- (4) Von Jaksch's Anemia.

Although these diseases represent definite clinical states, yet they shade into each other to such an extent that they may be variations of one pathological process.

If you will permit me, I will briefly review the significance of the retico-endothelial system. This system consists of large interstitial cells. The interior of the cells possesses a fibrillar structure which passes out of the cell to form a fine network in the intercellular spaces. These cells are located in the splenic pulp, in the splenic sinuses, in the cords of the lymph nodes, in the liver capillaries,

\*Read before the Providence Medical Association, March 2, 1931.

and in the bone marrow capillaries. They have a varied function. When circumstances demand it they can give rise to erythrocytes and leucocytes. They have marked phagocytic power. They store hemoglobin from the hemolyzed or injured red blood cells. They are also concerned in the metabolism and storage of lipid substances.

### I. NIEMANN-PICK'S DISEASE

Niemann-Pick's disease or lipid histiocytosis is a disease in which the reticulo-endothelial system becomes strangely invaded by lipid substances, especially cholesterol. The disease begins to manifest itself in the first few months of life, and the victim dies before the age of two years from exhaustion and infection. The disease affects predominantly female children of European Jewish extraction.

Clinically the disease is characterized by progressive splenomegaly, by hepatomegaly and by a generalized lymph adenopathy. The skin is brownish yellow. The eye-lids and ankles are edematous. The abdomen is distended. The physical and psychic development is greatly retarded. Some patients have a distinct mongoloid expression, while others resemble patients with amaurotic family idiocy. The disease is definitely familial and probably congenital.

Niemann-Pick's disease can be diagnosed during life by splenic puncture, and by the determination of the lipid content of the blood. One case recently observed by Berman at the Educational Hospital of the University of Illinois Medical College was diagnosed during life by splenic puncture. This case also showed an increase in the blood phosphatides, cholesterol and total fatty acids of from 33% to 70%.

The etiology of this disease is highly speculative. All authors seem to agree that the immediate cause is that of a disturbed lipid metabolism. Baty<sup>1</sup> thinks that this is a new disease brought about by our present-day civilization with its new dietary principles.

The blood picture in this disease is not remarkable. There is a moderate progressive secondary anemia with a slight leucocytosis. Premature blood cells, which are usually present in most splenomegalies, are conspicuous by their absence. The bleeding and the coagulation times are normal.

The fragility of the red blood cells is slightly reduced. It is indeed remarkable that the infant, with its highly unstable hematopoietic system, should not show some alterations in its blood picture as a result of such extensive pathological changes in its blood forming organs.

The pathology of this disease is striking. The histiocytes which are the tissue cells of the reticulo-endothelial system become filled with a lipid substance, giving them a characteristic foamy appearance. Large masses of these foam cells invade the liver obscuring its structure. These foam cells may be densely packed together in the splenic pulp. They may replace the bone marrow cells. The lymph nodes likewise show groups of these foam cells packed away in its sinuses. The alveoli of the lungs, the suprarenals and the thymus may also become invaded by these cells. Pick states that when the cells of the internal organs become exhausted in their capacity to store lipoids, muscles, cartilages and even nerve tissues will become the seats of this lipid invasion.

The type cell which is the pathological unit of this remarkable disease is round or oval. It has a cell membrane. The cytoplasm presents fine vacuoles. These vacuoles are separated by thin strands of cytoplasm. Occasionally these vacuoles unite to produce larger cavities. The cytoplasm may show the remains of engulfed red blood cells. The nucleus is small and centrally located and presents no distinguishable features.

The chemistry of these foam cells is simple. Cholesterol, phosphatides and neutral fats are found in varying proportions, the cholesterol being the predominating lipid.

### II. GAUCHER'S SPLENOMEGALY

In 1882 this disease was first described by Gaucher as a primary epithelioma of the spleen. In 1896 Picou and Ramond held that this was a benign endothelioma of the spleen and that it was associated with malignant changes in the lymph nodes. In 1904 Brill, Mandelbaum and Libman<sup>2</sup> were the first authors to note the large Gaucher cells in the bone marrow. In 1907 Marchand, a German worker, made an exhaustive study of the Gaucher cells, and he reached the conclusion that these cells were filled with a soft hyalin substance and that this substance is not due to a hyperplasia,

but to a deposition of some foreign substance in the cells. Finally, in 1916 Mandelbaum proved conclusively that the Gaucher cells originate from the reticulo-endothelial cells of the lymphatic-hematopoietic system. He also suggested that a disturbance in metabolism may be the cause of the disease.

The great strides recently made in lipid chemistry made it possible to determine the exact nature of this Gaucher substance. It is thus now known that this substance is formed by the linkage of lignoceric acid, sphingosin and d-galactose. The product is known as Kerasin<sup>3</sup>. It is also known that the Gaucher cells are rich in alcohol-soluble, but ether-insoluble phosphatides.

In the last few years, interest in Gaucher's disease has been revived by the discovery of gross bony changes which take place in the course of the disease. Of still greater interest is the fact that these bony changes can be recognized by roentgenological examination and can be used for diagnostic purposes. These bony changes will be discussed fully later on.

The clinical manifestations of this disease may begin in early childhood or may be silent for many years. The liver and spleen are invariably enlarged. The exposed parts of the skin become pigmented. There may be a characteristic thickening of the conjunctivum at the cornea-scleral junction. In the more advanced cases joint pains and bony deformities are frequently encountered. At times peculiar pigmented scars known as pingueculae are found. When present they are the results of hemorrhages under the skin. Some patients have frequent attacks of epistaxis, others may have showers of purpuric spots come on at regular intervals. In a few instances hemopericardium has been observed. All these signs and symptoms are due to the marked hemorrhagic diathesis which is so prevalent in this disease.

The blood changes in Gaucher's disease are more characteristic than those in Niemann-Pick's disease. Anemia when present is due to increased destruction of blood cells in the spleen and to the widespread changes in the bone marrow. The leucocytes are always reduced in number, but the lymphocytes are relatively increased in number. A constant feature of the blood is the thrombocytopenia, or low platelet count; and that is responsible

for the hemorrhagic tendency. Premature cells are usually absent.

The pathological changes are limited to the liver, spleen, lymph nodes and bone marrow. In these organs the specific Gaucher substance is deposited. This Gaucher substance is made up of masses of large cells, fibrous tissue and extravasated blood. The specific Gaucher cell is quite large. Some have one large nucleus, while others are multinuclear. The cytoplasm has a prominent fibrillar structure which gives the cell a characteristic wrinkled appearance.

At this point it may be worth while to compare Gaucher's disease with Niemann-Pick's disease, and note their resemblances as well as their differences. As pointed out above both diseases show a preponderance for females, and both occur mostly in the Jewish race. Both diseases are familial and both are congenital. In Gaucher's disease Kerasin is the complex lipid resulting from the disturbed metabolism. This lipid is deposited in the reticulum cells of the spleen, liver, lymph nodes and bone marrow. In Niemann-Pick's disease, phosphatides and especially cholesterol are the results of the disturbed metabolism. These are deposited not only in the reticulum cells of the lymphatic hematopoietic system, but also in all other tissues, such as neuroglia, muscle, tendon, thyroid, pancreas, and even connective tissue. The victim of Niemann-Pick's disease dies before the age of two years. The victim of Gaucher's disease usually lives to late middle age and then dies from some intercurrent disease. The type cell in Gaucher's disease is fibrillated and is possessed of several nuclei. The type cell in Niemann-Pick's disease is vacuolated and foam-like.

The bony changes are the most remarkable features of Gaucher's disease. These changes are not neoplastic in character, nor are they inflammatory. They are the results of a metabolic disturbance in which the normal bone marrow is progressively invaded by the specific Gaucher substance. As a result, the marrow becomes broadened and the cortex becomes thinned out. Various bones may be involved. The bodies of the vertebrae may show rarefaction. This may resemble Pott's disease, but differs from Pott's disease in that the cartilaginous discs are never involved in Gaucher's disease; whereas in Pott's disease the discs as well as the

bodies of the vertebrae are destroyed. The hip bones, the femurs, the tibiae and the fibulae may become involved. If the hip bones or the upper ends of the femurs are affected, typical coxa vara deformity may result, and is due to the increased load borne by the weakened bone. The most typical X-ray signs are found in the long bones. The lower third of the femurs shows a characteristic bilateral fusiform expansion. As the process progresses the lower fourth of the femurs including the inner concyles becomes rarefied. This is apparently an early diagnostic sign. At different levels in the shaft, areas of condensation appear abruptly between the areas of rarefaction. Later on the shaft will show a mottled appearance, the lighter areas being due to the replacement of calcified bone by Gaucher tissue, thereby allowing greater permeability of the X-rays. In the most advanced stages of the disease, the cortex will be thinned out to the extent that spontaneous fractures may result<sup>4</sup>

The diagnosis of Gaucher's disease cannot be made from clinical observations alone. Splenic or bone marrow puncture with the finding of Gaucher cells will, of course, establish the diagnosis. It seems that all cases of obscure splenomegaly should have an X-ray examination of the long bones. Banti's disease and Hanot's cirrhosis of the liver will sometimes have to be differentiated from Gaucher's disease.

In discussing the diagnosis of Gaucher's disease, mention should be made of the slight similarity in the bony changes found in this disease with those found in Von Jaksch's anemia (infantile pseudo-leukemic anemia). The bony changes found in Von Jaksch's anemia consist of a rarefaction of the long bones and of a broadening of the flat bones of the skull. These changes are due to an erythroblastic hyperplasia of the marrow. This anemia, however, shows a definite alteration in the blood picture. The red blood cells and hemoglobin are reduced. The color index is 1. Numerous nucleated red cells are found in the peripheral circulation. Myelocytes and myeloblasts are also found in the blood. In fact this picture resembles the blood picture found in pernicious anemia of the adult. Such a blood picture, of course, is never observed in Gaucher's disease.

The treatment of Gaucher's disease is entirely symptomatic. Splenectomy is indicated in cases where the spleen becomes so large that its mere weight is a burden to the patient. It should also be performed in cases where there is a marked progressive anemia, as the latter is due to excessive blood destruction in the spleen. Splenectomy is also performed to relieve a hemorrhagic tendency, when such is present. Splenectomy is not curative. It does not even arrest the progress of the disease.

### III. AMAUROTIC FAMILY IDIOCY

Another rare and puzzling condition of early childhood is amaurotic family idiocy. This disease also shows strong familial and racial tendencies. The symptoms are noticed between the sixth and tenth months of life. The child is dull and indifferent to his surroundings. It has a mongoloid expression. Later it becomes evident that the child is blind. In the early stages of the disease the muscles are weak and flaccid. The child is unable to support the weight of its own head. Later the muscles become spastic. The most interesting features of this disease are revealed by the ophthalmoscope. The oculi fundi show a bilateral atrophy of the optic discs. On exploring the region of the macula lutea one finds a white area with a cherry-red spot in the center. The child usually dies before it is two years of age.

The pathology of this disease is found in the central nervous system. The brain and the spinal cord become strikingly degenerated, and their cells are ultimately replaced by neuroglia.

Amaurotic family idiocy has been observed in patients with Niemann-Pick's disease. For this reason it is believed that the two diseases are intimately associated with each other, and that both diseases as well as Gaucher's splenomegaly are all expressions of the same anomalous lipid metabolism.

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## INTRA-PLEURAL PNEUMOLYSIS\*

## PRELIMINARY REPORT OF THREE CASES

By DR. HARRY L. BARNES,

WALLUM LAKE, R. I.

Pneumothorax treatment is of definite value in a considerable proportion of cases of phthisis. When it fails to arrest the disease it is usually because complete collapse of the lung is prevented by pleural adhesions between the lung and the chest wall. Any operation therefore which frees the lung from these adhesions and allows complete collapse is of considerable importance.

Jacobeaus of Stockholm began to cauterize these adhesions in 1913 and this work has been taken up by many others in recent years. The operation has been called Intrapleural Pneumolysis, Pleurolysis, the Jacobeaus' Operation, etc.

The writer knows nothing of the technique of the operation from personal experience, and gives the following brief explanation of the procedure in order that those who have not had their attention called to it may better understand the cases reported.

Under local anesthesia a trocar is inserted between the ribs, usually low in the chest either front or back, and through the canula of the trocar a thoracoscope is introduced, allowing a view of the pleural cavity and the adhesions. Many pleural adhesions can be seen through the thoracoscope which do not show on X-ray films.

The galvano-cautery is introduced into the pleural cavity by means of a second trocar inserted either in the front, in the back, or in the axilla near the site of the adhesions, which are severed by the cautery at red glow.

Adhesions from the size of a small string up to the size of a little finger are often easy to cauterize, while wide bands of adhesions may be impossible to sever. Strings extending laterally to the chest wall are easier to sever than adhesions at the apex, and basal adhesions are most difficult. Improved thorascopes are reported and for a recent one it is claimed that it allows vision and the cutting of the adhesion through the same aperture, the adhesions being cut by diathermy. Pleural adhesions have been severed after open incision through the

chest wall but this involves much more danger to the patient than the closed method of Jacobeaus. The chief immediate danger is hemorrhage and Jacobeaus was able to find only one record of fatal hemorrhage in the 600 cases which he reviewed.

In about 10 per cent of Jacobeaus' cases a serious pyo-pneumothorax followed with death resulting in three cases. He was technically successful in 80 per cent of the cases operated on and 65 per cent of the cases did well clinically. Matson<sup>2</sup> has reported technical success in 60 per cent and clinical success in 67 per cent of 206 cases.

Case No. 7814, a woman 21 years of age, admitted October 4, 1925. The film showed slight mottling in the first two spaces of the right lung and the upper two-thirds of the left lung with a cavity from apex down to the second space. The sputum contained tubercle bacilli. Pneumothorax treatment was begun on the left side on October 8, 1925, and a fair amount of collapse was obtained within a few months, but adhesions over both upper and lower lobes prevented complete collapse. At the end of refills of gas, a positive pressure of 7 and 8 c.c. of water were repeatedly applied in the hope of stretching the adhesions, but without result. On August 11, 1929, after nearly four years of pneumothorax treatment, the adhesions persisted, there being a string-like adhesion in the first space, an adhesion about 1 c.m. broad in the second space and still another wide band of adhesion at the level of the fourth rib. Dr. Edward S. Welles of Saranac Lake, who operated October 17, 1929, at our request, reports as follows:

"Under local anesthesia a thoracoscope was introduced into her chest and the pleural cavity carefully explored. One large thick adhesion and one smaller adhesion were seen holding out the lung to the chest wall. Under local anesthesia another canula was introduced into her chest in the anterior axillary line and through this an electric cautery was introduced. Under direct observation through the thoracoscope the two adhesions were completely cut through with the cautery."

Pneumothorax treatments were continued and a film taken October 29, 1929, showed complete collapse of the upper lobe. Collapse of the lower lobe was not quite complete because of an adhesion which was considered too wide to cut, but as the cavity and most of the disease was in the upper lobe the collapse appeared satisfactory. This film

\*Read at the Annual Meeting, R. I. Medical Society, Providence, R. I., June 4, 1931.

showed a small area of recent infiltration in the right upper lobe. This area had begun to clear in March and had almost completely cleared by April 4, 1931. Tubercle bacilli have not been found in the sputum since January, 1930. The patient is doing light housework and claims to feel well.

Case No. 9619, girl, aged 14. Admitted May 23, 1929. The X-ray film shows in the right apex clouding and honeycombing with fine mottling from the clavicle down to the second space, and in the left lung fine mottling almost throughout with an area of rarefaction about  $2\frac{1}{2}$  c.m. in diameter in the first space. About one year later the film showed some clearing in the central third of the left lung with an apex cavity 4 c.m. across and sufficient clearing in the right upper lobe to justify collapse of the left lung. Pneumothorax treatment began May 13, 1930, and the left lung appeared about half collapsed by August 12, 1930. Complete collapse of the lung and cavity was prevented by two string-like adhesions attached to the outer chest wall at the level of the second rib. Positive pressures were not used at refills, because even on negative pressure the heart and mediastinum were displaced to the right. As these strings persisted after five months of pneumothorax treatment, operation was decided upon. Dr. Edward D. Churchill reports as follows:

"At the Massachusetts General Hospital on October 18, 1930, one of the adhesions was cauterized, under local novocaine anesthesia. The pre-operative preparation of this patient with scopolamine had made her restless and unco-operative, and the operation was discontinued. On November 4th, thoracoscopy was repeated and two other adhesions severed by cautery. There was no bleeding and the postoperative course was normal."

Pneumothorax treatment was continued and an X-ray film taken November 21, 1930, showed complete collapse of the left lung, and the sputum which had contained tubercle bacilli in August and September, 1930, has been negative ever since the operation.

Case No. 9295, admitted September 6, 1928, when her film showed in the right lung only increased prominence of the lung markings, in the left lung fine mottling in the first three interspaces.

A film taken December 4, 1928, showed a spread of the lesion in the left lung and pneumothorax was started the day following. A film on January 29, 1929, showed a moderate pneumothorax in the left chest with a prominent adhesion extending to the chest wall at the level of the second rib. Attempts to stretch out this adhesion with positive pressures of 3 and 4 c.c. of water were partially successful, the film of July 9, 1930, showed that the lung was almost completely collapsed but with a string-like adhesion still holding uncollapsed a prominent tag of lung tissue in the neighborhood of the hilum, about the size of two thumbs. At the time the operation was decided on in October, the patient had paroxysms of coughing which were so severe that the patient had vomited once or more daily for about three months. Stopping pneumothorax treatment gave no relief.

Dr. Churchill's report follows:

"Operation at the Massachusetts General Hospital October 17, 1930, under local novocaine anesthesia, thoracoscopy was performed. It was a relatively simple matter to sever the long single adhesion stretching from the apex of the pleural cavity to the lung. On the surface of the visceral pleura at the base of the adhesion there was an ulcerated area of about one centimeter in diameter which I think was a definite tuberculous ulceration. Her convalescence from the operation was uneventful."

A film taken October 28, 1930, showed complete collapse of the left lung. Tubercle bacilli were found in the sputum only once before the operation and never have been found since. Her violent cough was relieved immediately after the severing of the adhesion. Pneumothorax treatment continues and the patient is doing well, although some cough persists.

These three patients, all of whose sputums became negative after the cauterization of adhesions, illustrate the benefit which can be derived by this operation.

<sup>1</sup>Hans Christian Jacobaeus, Transactions National Tuberculosis Association, 1926, page 102.

<sup>2</sup>Ralph C. Matson, The Western Journal of Surgery, Volume 38, No. 11.

RECENT STUDIES IN THE ETIOLOGY  
OF APPENDICITIS\*

By DR. JOHN F. KENNEY

PAWTUCKET, R. I.

When your president asked me to read a paper before this society, it became my problem to try to present something not too theoretical and of interest to the greater number.

The appendix is something of this day and age in medicine and I think you will agree that out of thousands of cases operated, no two cases are exactly alike. Furthermore, the mortality of appendicitis during the past few years has increased up to twenty per cent. To date, the exact cause of appendicitis is not known.

For the past year or more, Miss Thomson has been carrying out a series of tests at our laboratory. We have had the assistance of surgeons co-operating in the operating room. To date we have studied over one hundred cases.

Appendicitis occurs at all ages. Young adults under thirty years of age and especially males constitute the majority of cases. It was found more frequently in the army than in civil life, due to fatigue and exposure to wet and cold, both of which render a latent infection acute by lowering the resistance, or may give origin to primary acute attacks.

S. T. Irwin (Lancet, January 18, 1919) studied 131 cases, 89 of acute appendicular obstruction. In these obstructive cases, he holds that the primary cause is obstruction of the lumen of the appendix. The larger number of cases, fifty in all, were found to be caused by concretions. Others were obliterated by worms, seeds, and other foreign bodies. The conformation of the organ also influenced markedly the development of the disease, forming as it does a more or less blind sac which opens into the caecum. It is more or less exposed, according to the size of the aperture and the direction of the appendix, to the penetration of fecal matter or foreign bodies and to kinks, adhesions, tumors, etc., which compress or obliterate its lumen.

Various diseases favor development of appendicitis: gastro-intestinal disorders, typhoid fever,

colds, influenza, constipation, tonsillitis, pus-laden tonsil crypts, streptococci disorders of teeth, tubercular or neighboring pelvic or catarrhal processes. The local inflammation in these cases is caused by the intrusion of minor organisms and it was on this basis that this small series of studies was made.

The clinical relation between appendicitis and tonsillitis does not depend on blood transmission as it has been proven that infection from tonsil can be obtained by way of the alimentary canal.

Rosenov believes that in many instances appendicitis is an acute focal metastatic infection. He has demonstrated that appendicitis occurs in 68% of animals inoculated with streptococci isolated from cases of appendicitis, while only 5% were affected from streptococci isolated from various other sources.

Ova and pin worm have been found in a number of cases.

The purpose of this study was to determine the organism present in appendicitis removed at operation and, if possible, to differentiate between the acute and chronic type bacteriologically. They were divided into 30 normal cases (by normal cases, I mean cases removed routinely where no other infection of body or organ was demonstrable, as in hysterectomy), 34 cases of acute appendicitis, and 36 cases of chronic appendicitis. The appendices were sent to the laboratory in sterile containers and cut open under sterile conditions, the time varying from one-half hour to twelve and twenty-four hours. Cultures were taken of approximately 1 c.m. from the distal end and were planted on agar plates. At the same time, a direct smear from the same portion was taken and stained by Gram so that any organism that might not grow on media might be picked up. In numbers, by comparison of organisms in direct smears and colonies on plates, more organisms were present in the direct smears.

Many variations in procedure of isolation were tried. One to three methods were used on each appendix. Agar or glucose plates were used and a transplant made from each type of colony on the plate. Some were cultured by placing a small piece of appendix about one-half c.m. in length in glucose broth and after twenty-four to forty-eight hours the broth was streaked on plates. Two methods of oxygen-tension were used, first agar poured into

\*Read at the Annual Meeting of the Rhode Island Medical Society, June 4, 1931.

both bottom and cover of plate and hardened. *Escherichia coli* were planted on the cover. Appendix culture was planted on the bottom plate. Plate was filled with plasticine and inverted. Second, agar or glucose agar used with pyrogalllic acid and 10% sodium hydroxide and sealed with plasticine. It was found that no species of organism was isolated by this method. It was also not isolated by the agar plate method. Cultures were also taken from the stump of the appendix in the operating room before it was cauterized or inverted. All cultures were carried out on the sugars and the names as assigned are based on the reactions obtained.

Examination of the Gram smears showed a marked difference between the acute and chronic cases and normal appendices. In 66% of acute cases, the lumen contained pus, which may be taken as evidence of acute inflammation. The number of organisms found in smears in acute cases is smaller than in chronic cases. The lumen is frequently filled with fecal material which is made up mostly of bacteria. The cases where no growth was obtained were in most cases non-patent lumens and obliterative types. Even the smears in these cases were negative. Of the 19 cases from which no growth was obtained, 47 3/10% were diagnosed as chronic at the time of operation. Two or 10 1/2% of the non-growth producing appendices were diagnosed as acute. In both cases, pus was found but no bacteria. Eight or 42% were of the so-called normal group.

CHART OF THE APPENDICES FROM WHICH NEGATIVE CULTURES WERE OBTAINED

	Acute	Chronic	Normal	Total
Total examined .....	34	36	30	100
Number sterile .....	2	9	8	19
Per cent sterile .....	5.8	25	26.6	19

CHART SHOWING COMPARISON OF ORGANISMS ISOLATED

	Acute (34)		Chronic (36)		Normal (30)	
	No.	Per cent	No.	Per cent	No.	Per cent
<i>Escherichia coli</i> .....	15	44	19	52.7	10	33.3
<i>Escherichia communior</i> ...	9	26.4	5	13.8	6	20
<i>Pseudomonas aeruginosa</i> ...	4	11.7	6	16.6	6	20
<i>Alcaligenes fecalis</i> .....	5	14.4	4	11.1	5	16.6
<i>Salmonella enteritidis</i> ....	3	8.8	0	0	0	0

Many other species were isolated in one or two cases as spore-forming rods, etc. In cultures taken from the stump at operation, 57% were negative growths. There is no special reason apparent for this. It may be the crushing process before cutting; possibly the wiping motion of the knife may cause some tissue fluid to wash the bacteria away.

All the appendices were not cultured by the same methods but the same species were obtained by the agar plate method as by any other. The broth to agar method was not of value, as over one-third show no growth that showed up with other methods.

#### CONCLUSIONS

1. The *Escherichia coli* was isolated more frequently than the other organisms and *escherichia communior* was next more common.
2. The same organisms were isolated in the acute, chronic, and normal groups.
3. Appendices were found that showed no growth and smears were also negative.
4. Smears from chronic and normal cases contain a larger number of bacteria. These appendices usually contain fecal material.
5. The invaders of normal, acute and chronic appendices were shown to be normal inhabitants of the intestinal tract and if the opinion may be made, that the bacterial infection is provoked by some primary cause, playing a secondary role to lowered resistance or some mechanically induced cause.

I wish to give credit for work on this paper to Miss Ruth F. Thomson and also to the co-operation of Dr. Holt and his assistants on the surgical service.

#### THE RETURN OF REASON

##### A SKETCH

By HENRY A. JONES, M.D.

AUBURN, R. I.

A grey haired and bearded man of sixty-eight years entered the "asylum" at Howard as a case of mania, while I was there as a young interne. His parched lips and sunken cheeks showed the lack of food and water, and none could be given him on account of his resistance and fear. He was rapidly being exhausted by his struggles against food and rest. This was not a case for chemical or

mechanical restraint, and the soothing tub baths were then unknown in that institution. My chief asked me if I would take the case under my personal supervision. "Care for him as if he were your very own," he said, "stay by him constantly, and if you see in him a dawning of consciousness, send for his own people."

Such a night of anguish! He shouting out continually and wrestling against the torments of his tortured mind—I trying to fight off with him those Satanic obsessions of fear which possessed him. Toward the morning he quieted down, the tumult ceased and turning on his side he opened his eyes and whispered: "My boy, where is he? Send for him; I want him." Astonishment came over me when I heard these first intelligible words.

My ears had been dinned the whole night long with the noise of his shoutings, and the cessation of this had the same effect upon me as it does when one is in the midst of a howling gale, wearied by the continued buffeting of the elements, turns unexpectedly around a corner, and suddenly finds quietness and peace.

"It happens sometimes in cases like this. Just at the last the black cloud lifts from the mind: the dark night of the soul thins out, and for a moment, the light comes. The intruder is gone. And the dying man dies—himself again."\*

Oh! the long drawn out, slow moments of time, when our desires ask for eagles' wings! Would that son ever come!

A grey pallor began to creep over the face of the sick man, as the fog creeps over the face of the landscape, blotting out one by one the familiar landmarks.

I prayed in my heart that God would speed the horse to bring his son to him, before the fog of unconsciousness would blot out forever the failing sign posts of memory.

A hurried step was heard on the porch, a rush of a form into the sick room, a focusing of the feeble glance of the patient upon the face of the son he loved! The lifting of his arm about his neck. "Oh, Father, this is Will. Do you know me? I'm here. Will is here." "Yes," said the patient, "I do. I can't stay here, I'm going! but I'm so glad you came at last."

I turned away from the scene of sorrow. I had fought all the night long for his life, but it seemed as if every defense I erected had been broken

down by an invisible hand, stronger by far than my feeble efforts of science, and I stood defeated!

The sun rose brightly that morning, and a shining ray came through the hospital window and illumined the room where two men were in each other's arms. The light scintillated the tear drops upon the face of the younger man as if they were diamonds, and it lighted up the cold mist like dew upon the pallid forehead of the elder man—for he was dead! And in his arms the son no longer held a human personality, but "only a worn out fetter that the soul had broken and thrown away."

\*Fear, by Oliver, page 226.

## SOCIETIES

### RHODE ISLAND MEDICAL SOCIETY

The regular quarterly meeting of the Rhode Island Medical Society was held at Butler Hospital, Providence, R. I., on Thursday, Sept. 3, 1931, through the courtesy of the Board of Trustees and the superintendent of Butler Hospital. The meeting was called to order at 4 P. M. by the President, Dr. H. L. Barnes.

The minutes of the annual meeting were read by the secretary and adopted.

Dr. W. Louis Chapman presented roentgenograms of sigmoid flexure which showed the difficulty of passing the ordinary proctoscope into the sigmoid flexure. He also presented for examination a simple proctoscope in which the illumination is provided for by the ordinary pocket flash lamp clamped onto the handle of a proctoscope and illuminating the interior of the tube. The advantages claimed for this instrument are cheapness and durability of the illuminating element as compared with the illuminated proctoscope generally used.

The cases presented by Dr. Chapman were discussed by Dr. Jacob S. Kelly.

The following program was then presented:

1. "Mental Attitudes Associated with Deafness," Dr. Geo. A. Elliott. Discussion by Drs. Sanborn, Dimmitt, Ruggles, Leech, Corser, Barnes, Elliott.

2. "Psychiatric Aspects of Medical Conditions," Dr. H. O. Colomb. Discussion by Drs. A. P. Noyes, Clark, Sanborn, Cohen.

3. "The Use of Air Injection for Neurological Diagnoses," Dr. Wilfred Pickles. (Lantern demonstration.) Discussion by Drs. Ruggles, Benjamin, Sundin, Keaney.

On motion of Dr. Skelton, duly seconded, a vote of thanks of the Society was extended to the Board of Trustees and the superintendent of Butler Hospital for their courtesy and hospitality in holding the meeting at Butler Hospital.

Following adjournment a collation was served.

Respectfully submitted,

J. W. LEECH, M.D., *Secretary*.

#### THE OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY

The annual outing and dinner of the Rhode Island Ophthalmological and Otolological Society was held on July 22, 1931, at Cold Spring House, Wickford, Rhode Island. There were thirteen members and six guests present. Transportation was afforded through the courtesy of Dr. George W. Van Benschoten. The Society were his guests on his yacht from the Rhode Island Yacht Club to Wickford. With pleasant weather, a delightful boat ride, and an excellent dinner, the day was very enjoyable to the members of the Society. The officers elected for the ensuing year are: Dr. Frank W. Dimmitt, president; Dr. Herman A. Winkler, vice-president; Dr. Nathan A. Bolotow, secretary-treasurer. Dr. Raymond Hacking was elected to the Standing Committee.

### HOSPITALS

#### THE MIRIAM HOSPITAL

During the past season the Miriam Hospital has established a Sterility Clinic under the direction of the Gynecological Department. Also an Orthopedic Out-Patient Department was established under the supervision of the Surgical Service.

The Miriam Hospital Staff Association held its annual outing at the Ledgemont Country Club, West Warwick, R. I., on June 25, 1931. A golf tournament lasted throughout the afternoon and prizes to the winners were awarded at a dinner

served at the club house in the evening. About forty members were present and they were all afforded a very enjoyable time.

#### MEMORIAL HOSPITAL, PAWTUCKET, R. I.

Memorial Hospital Staff meeting held May 7, 1931. Meeting called to order by Dr. James L. Wheaton, temporary chairman, at 9:00 P. M.

Minutes read and approved as read. Speaker of the evening, Dr. Roland Hammond. Subject, "Newer Ideas in Orthopedics." Described happenings at the Memphis convention:

1. Pseudomycosis—leg ulcers studied with the idea of determining the causative factor. This work is being done by the laboratory men in conjunction with the orthopedic surgeons.

2. Arthroplastic cases as discussed by Drs. Campbell and Baer.

3. Dr. Spied gave paper on the operation for cure of drop foot in infantile paralysis.

4. Symposium on backache, which was covered in the following aspects: Anatomy, surgery, orthopedic, gynecological, neurological, urological, industrial.

5. Technical and special papers.

Dr. Hammond's description of the papers read, as well as other interesting events in the convention, was very pleasing to the staff. Motion made to adjourn and passed at 9:50 P. M.

STANLEY SPRAGUE, M.D.,  
*Secretary*.

### CASE REPORTS

#### CLINICAL-PATHOLOGICAL CONFERENCES RHODE ISLAND HOSPITAL

J. E.

Case No. 1, presented by Dr. Charles S. Turner.

C. C. Epigastric soreness, dyspnea, palpitation, dependent edema.

P. H. and F. H. Irrelevant.

P. I. For the past six months, the patient has been complaining of a constant epigastric soreness unaffected by food. Did not try soda. At first it came about three hours after eating and was ac-

accompanied by heartburn and a sense of fullness in the stomach but no definite pain. The fullness at times seems to oppress his heart. On only one occasion, he vomited some bile tinged watery material. No tarry stools noted. Bowels have been regular. He has been preparing his own meals and at times they have not been sufficiently good to offer much stimulation to his appetite. He has restricted himself almost entirely to a vegetarian diet. He has lost about 5-10 pounds in weight in six months. No jaundice has been noted.

For the past 6-7 weeks, he has noted increasing palpitation and dyspnea on exertion and a chronic dry cough, not productive of anything more than mucoid phlegm. No blood. For the past three weeks, he has noted gradually increasing edema of his ankles which decreased during the night. Has not been able to do his work on his farm for the past month. About two weeks ago, he had a short spell of dizziness and faintness but did not lose consciousness or fall.

A few days ago, he came to the O.P.D. from where he was sent for a G.I. series of which there is the following report:

"The stomach is normal in position and outline. The first portion of the duodenum is irregular. There is no abnormality in the cecum and colon. Diagnosis: Duodenal ulcer."

He was referred to the hospital and was admitted on April 11, 1931.

*P. E.* Showed a well developed and nourished, elderly white male of 66 with a rather sallow appearing skin but not jaundiced. Not acutely ill.

No lymphadenopathy made out. There was some sub-conjunctival fat and the mucous membranes were quite pale. Pupils react well to light.

There was moderate dullness and quite a few moist sticky rales heard at both bases posteriorly. No evidence of consolidation.

The heart was moderately enlarged to percussion. The main rhythm was very slow but numerous weak extrasystoles were heard which did not reach the wrist. There was a moderately loud systolic murmur at the apex transmitted to the axilla and towards the pulmonic area. Moderate peripheral sclerosis. Blood pressure 180/70.

There was a non-tender mass with a sharp edge palpated a full hands breadth below the R.C.M. Another mass with a rounded edge felt in the L.U.Q. not tender. There is marked pitting edema over both ankles and up the backs of the thighs and over the sacrum.

K. J. absent. A. J. present. Babinski and Ankle Clonus absent.

Flat plate of the abdomen shows no definite evidence of pathology. No evidence of opaque calculi. The lumbar vertebrae show definite hypertrophic changes.

E.K.G. 5/13/31. The record shows a complete heart block with a ventricular rate of 33 and an independent auricular rate of 75.

Urine showed L.P.T. of albumen and many pus cells once. Negative on another examination.

Blood—Wasserman negative. B.U.N. 15. Sugar 82. R.B.C. 2,350,000. Hgb. 55 by Sahli.

Smear shows cells to be elliptical. Polys 71%, Eos. 1, Lymphocytes 26, L.M.N. 2.

Stool negative for blood.

On the basis of X-ray findings, the patient was put on a Sippy-diet and with the exception of some initial difficulty in controlling his bowels, he improved in every way.

He developed a slight respiratory infection after about a week in the hospital and on April 22nd, the 12th day in the hospital, he suddenly developed a fever of 103.8, had a chill and showed signs of pneumonia in the right apex. An X-ray taken showed:

"Examination of the chest shows the heart shadow enlarged, most marked in its transverse percussive diameter. There appears to be definite calcification in the transverse arch of the aorta consistent with arterio sclerotic heart disease. The lower halves of both lung fields are less radiant than normal, probably due to congestion. No definite evidence of consolidation, pneumonia, or free fluid in the pleural cavity."

His temperature stayed up, and about 5 A.M. the next day he was noted to suddenly gasp for breath and he expired before he could be seen by the service.